The Visiting Specialist Model of Rural Health Care Delivery: A Survey in Massachusetts

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ABSTRACT: ***Context:*** *Hospitals in rural communities may seek to increase specialty care access by establishing clinics staffed by visiting specialists.* ***Purpose:*** *To examine the visiting specialist care delivery model in Massachusetts, including reasons specialists develop secondary rural practices and distances they travel, as well as their degree of satisfaction and intention to continue the visiting arrangement.* ***Methods:*** *Visiting specialists at 11 rural hospitals were asked to complete a mailed survey.* ***Findings:*** *Visiting specialists were almost evenly split between the medical (54%) and surgical (46%) specialties, with ophthalmology, nephrology, and obstetrics/gynecology the most common specialties reported. A higher proportion of visiting specialists than specialists statewide were male (P = .001). Supplementing their patient base and income were the most important reasons visiting specialists reported for having initiated an ancillary clinic. There was a significant negative correlation between a hospital's number of staffed beds and the total number of visiting specialists it hosted (r = –0.573, P = .032); study hospitals ranged in bed size from 15 to 129.* ***Conclusions:*** *The goal of matching supply of health care services with demand has been elusive. Visiting specialist clinics may represent an element of a market structure that expands access to needed services in rural areas. They should be included in any enumeration of physician availability.*

Difficulties involved in delivering health care to rural communities have been well documented.[1-5] Sparsely settled populations, geographical isolation, low rates of health insurance coverage, a higher proportion of elderly, and too few health care providers have presented the rural patient and health care system with a unique yet interrelated set of challenges.[5-7] Research into these challenges has tended to focus on the recruitment and retention of primary care physicians (PCPs); less well explored has been how specialty services might be made more accessible to rural residents.

To generate a patient base, specialty care is typically concentrated in urban metropolitan communities. This leaves rural dwellers facing the problem of poor access to a broad range of medical services and the rural community hospital falling short of its goals of offering a full spectrum of care and generating adequate revenue. Moreover, the rural PCP is stymied in his/her desire for access to convenient specialty consultations, as well as more streamlined referrals and professional networking opportunities. While numerous suggestions have been made regarding system changes aimed at meeting the needs of rural residents and providers,[3,8-13] only a few of these approaches have included the addition of the visiting specialist model of care.[1,14-17]

A visiting specialist is a non-PCP who maintains a rural ancillary practice in addition to an urban/suburban primary base practice.[1] In effect, the visiting specialist model brings at least some of the services more commonly found in urban areas to the rural patient, the community hospital, and the PCP. In the past decade, the prevalence of this type of practice arrangement has been described in a few Midwestern states. It has been described in only a very limited way in New England.[1]

The goal of this study was to characterize the visiting specialist care delivery model in Massachusetts.

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A relatively small state known primarily for its large, urban medical centers, Massachusetts has numerous underserved rural and small town communities, concentrated mainly in the Lower Cape Cod and mid and western areas of the state. To maintain and supplement limited medical resources, these smaller communities employ a variety of creative strategies including telemedicine, health care networks, service specialization, and even critical access status for small community hospitals. Among these more publicized options, the visiting specialist model is a further adaptation—one that has attracted little attention but that is aimed at ensuring that a moderately complete range of medical options is available in rural areas. This study describes the extent of the visiting specialist practice modality as well as reasons for and satisfaction with a secondary rural practice.

Methods

In June 2004, the Office of Rural Health in the Massachusetts Department of Public Health provided the researchers with a list of the 15 nonspecialty hospitals located in rural areas of the state. A municipality in Massachusetts is considered rural if it meets at least 1 of 4 federal rural definitions—Census, rural-urban commuting area codes, Office of Management and Budget nonmetropolitan areas, or the Beale/rural-urban continuum codes—and/or it has a population less than 10,000 people and a population density below 500 people per square mile (personal communication, Massachusetts State Department of Public Health's State Office of Rural Health, June 7, 2004). The researchers contacted the chief administrative officer of the 15 hospitals, explaining the intent of the study and requesting a list of all the visiting specialists who had maintained an ancillary practice affiliated with the hospital within the previous 12 months. One of the 15 hospitals did not respond and 3 did not have any visiting specialists, leaving 11 participating hospitals.

Physician lists were compared and consolidated so that visiting specialists who were affiliated with more than 1 hospital would receive only 1 initial contact. This produced a list of 199 visiting specialists.

Using information from previous studies of visiting specialists,[14-16] a 47-item questionnaire was developed and mailed to each of the study physicians. The questionnaire asked providers about their reasons for maintaining a visiting specialist clinic, characteristics of their base practice and their visiting specialist clinic, satisfaction with selected aspects of their practice, and the likelihood of continuing this arrangement.

Guided by Dillman's[18] total design method, if the questionnaire was not returned within 10 days, a telephone call was made to the physician's office, encouraging him/her to complete it. As an incentive, physicians who returned the survey within 1 month were eligible to win 1 of 3 $50 bookstore gift certificates. If a completed survey had not been received within 3 weeks from the date of the first mailing, a second survey packet was sent. Addresses marked "undeliverable" were checked with the state Board of Registration's database to obtain more accurate and current addresses when available.

Three main sources of secondary data were used. They included (1) the Massachusetts Health Data Consortium's *Massachusetts Physician's License Database*[19] for physician demographic and educational information, (2) *The Dartmouth Atlas of Health Care: The New England States*[20] to describe hospital referral regions and distances from major medical centers, and (3) the American Hospital Directory[21] and hospital Web sites to describe individual hospitals. The study was approved by the University of Massachusetts Institutional Review Board's Human Subjects Committee.

Data were analyzed using SPSS/PC statistical software (V11.5, 2002; SPSS, Inc., Chicago, Ill). Univariate and bivariate statistics were the primary means of analysis. Frequency and percentile distributions, means, and medians were used to describe characteristics of the visiting specialists, as well as the participating hospitals. Depending on the categorical or continuous nature of the data, chi-square and *t* tests were used to assess significance at the .05 level; as appropriate, Mann-Whitney *U* tests were used to compare ranks.

Results

Questionnaires were mailed to all visiting specialists (N = 199). Twenty-seven were subsequently excluded because they had left their practice, did not fit our definition of a visiting specialist, or could not be contacted. Of the remaining 172 eligible visiting specialists, 99 completed and returned the survey (58% response rate).

With respect to location of medical school attended, no statistically significant differences were found between respondents and Massachusetts specialists, nor between respondents and all Massachusetts physicians. Additionally, there was no statistically significant difference between respondents' and nonrespondents' gender, medical school location, or specialty category. Respondents were, however, more likely than Massachusetts specialists ($\chi^2 = 4.46$, $P = .03$) and all Massachusetts physicians ($\chi^2 = 10.94$, $P < .001$) to be male (Table 1). This was also true for the study's universe of visiting specialists ($\chi^2 = 10.66$, $P = .001$ and $\chi^2 = 23.32$, $P < .001$, respectively).

Respondents were almost evenly split between those practicing medical (54%) versus surgical specialties (46%) (Table 1). Ophthalmology, nephrology, and obstetrics/gynecology were the most common specialties practiced; in descending order, hematology/oncology, otolaryngology, and cardiology were the next most common specialties. Based on state licensing data and the numbers of visiting specialists identified by hospitals responding to our initial survey, 1.7% of Massachusetts surgical specialists and 0.6% of medical specialists have ancillary practices in rural hospitals. The mean number of hospital clinics staffed by the medical specialists, however, was slightly higher than that of surgical specialists (1.98 and 1.73, respectively).

The study hospitals ranged in size from critical access hospitals with only 15 beds to hospitals with 129 beds. On average, these community hospitals were located 47.7 miles (range: 20-102 miles) from the nearest major medical center, with an estimated transportation time of 73 minutes (range: 24-282 minutes). The hospitals were affiliated with an average of 14 visiting specialists. Three of the 14 responding hospitals did not report any visiting specialists, while the remaining 11 reported affiliations with between 1 and 52. There was a significant negative correlation between the number of staffed beds and the total number of visiting specialists hosted by a hospital ($r = -0.573$, $P = .032$). There was no statistically significant relationship between distance from the nearest major medical center and number of beds nor distance from the nearest major medical center and number of visiting specialists.

Respondents identified the opportunities they had to supplement their patient base and augment their income as the most important factors contributing to their *initial* decision to become a visiting specialist as well as their reason to travel to a rural area. These top 2 reasons were reaffirmed in response to an open-ended question about establishing the visiting specialist clinic; 28% of respondents mentioned a desire to increase their patient base/income as their prime motivating reason. Interestingly, 2 additional reasons—"opportunity to deliver care to underserved patients" (27%) and "added convenience for rural patients" (23%)—were mentioned by approximately one quarter of the respondents and reflected motivators that had not been included in the closed-ended question.

In addition to being the 2 most important factors influencing their initial decision to establish a clinic and travel to a rural area, visiting specialists cited supplementation of patient base (25%) and income (20%) as the 2 most important factors influencing their

Table 1. Sociodemographic Characteristics of Massachusetts' Visiting Specialists and All Physicians in Massachusetts*

	Massachusetts Visiting Specialists†				
	Respondents n = 99 (%)	Nonrespondents n = 73 (%)	All Surveyed n = 172 (%)	Massachusetts Specialists n = 19,542 (%)	All Massachusetts Physicians N = 31,620 (%)
Gender‡					
Male	82 (83)	66 (90)	148 (86)	14,701 (75)	21,802 (69)
Female	15 (15)	7 (10)	24 (14)	4,830 (25)	9,803 (31)
Age					
Younger than 45	33 (33)	NA‡	NA	5,560 (28)	12,927 (41)
45-55	39 (39)	NA	NA	7,202 (37)	9,885 (31)
Older than 55	24 (24)	NA	NA	6,780 (35)	8,738 (28)
Medical school§					
New England	26 (26)	21 (29)	47 (27)	5,931 (30)	9,571 (30)
Other US	47 (47)	29 (40)	76 (44)	9,131 (47)	14,810 (47)
Foreign	23 (23)	26 (36)	49 (28)	4,375 (22)	7,044 (22)
Medical Specialists¶	53 (54)	41 (56)	94 (55)	14,914 (76)	NA
Surgical Specialists¶	46 (46)	32 (44)	78 (45)	4,628 (24)	NA

*All Massachusetts specialist/physician data as well as all age data are from the Massachusetts Health Data Consortium, Database of Licensed Physicians. Columns may not total 100% due to sporadically missing data. Response rates by hospital site ranged from 38% to 100%.

†Visiting specialists identified by participating hospitals.

‡NA indicates not available.

§Gender/medical school data and nonrespondent/all surveyed data are from the Massachusetts Board of Registration in Medicine.

¶Medical specialties include nephrology, cardiology, anesthesia, hematology/oncology, etc. Surgical specialties include ophthalmology, obstetrics and gynecology, otolaryngology, urology, general surgery, etc.

decision to *remain* a visiting specialist; contractual arrangements ranked as the third most important factor.

Responding to a 5-point Likert scale, with 1 indicating "very satisfied" and 5 indicating "not at all satisfied," visiting specialists reported greatest satisfaction with their base practice ($M = 1.64$) and their practice situation overall ($M = 1.83$) (all locations); they were generally less satisfied with their satellite practice ($M = 2.27$) and least satisfied with their overall workload ($M = 2.67$).

When asked to predict the likelihood of changes in their practices in the next 5 years, almost three quarters of visiting specialists reported that they anticipated remaining committed to their current professional arrangement (72%). While most thought it unlikely that they would discontinue their satellite practices (65%), only about one quarter expected to expand or direct additional resources toward those clinics (26%).

A majority of respondents (71%) noted that they visit their rural hospital clinic more than twice per month (Table 2). Almost all (96%) reported seeing 5 or more patients per visit. Statistically significant differences by gender appeared only for length of time at base practice and travel time between visiting specialist clinic and base practice. Although the number of medical specialty clinics in the study hospitals was at least equal to but in most cases greater than the number of surgical specialty clinics, surgical specialists were more likely than medical specialists to see more than 15 patients at each visit (58% vs 39%, respectively, although this was not statistically significant). For the majority of respondents, the clinic was one they had been visiting for more than 5 years (64%), with round-trip travel time between visiting specialist clinic and home as well as between visiting specialist clinic and base practice less than 2 hours. Very few (11%) indicated that they were willing to travel more than 1 hour to their clinic.

While hospitals were statistically significantly more likely to provide staffing ($P = .03$) and equipment ($P = .02$) for the medical than the surgical specialists, in most cases, the rural base hospital provided equipment, staffing, and supplies for a visiting specialist clinic. Patient scheduling was handled either by the hospital or by the office of the visiting specialist.

Discussion

The visiting specialist physician model of workforce distribution has been described as reflecting the dynamics of supply and demand.[15] Our study's results support this assertion. In a state such as Massachusetts, known for its urban medical centers and physicians, competition for patients can be strong. Faced with a smaller-than-desired urban patient base, it appears that specialists are looking elsewhere to supplement their patient base and income. By making regular visits to communities needing a specialist's care, these physicians are able to add to an existing, albeit insufficient, base practice patient population.

The primary motivation for establishing a visiting specialist clinic, therefore, appears to be driven by factors directly related to the physician's professional needs for patients and income. Secondary motivations important for continuing to maintain an already established visiting specialist clinic appear more altruistic in nature. Obligations to the needs of patients, the rural medical community, and contractual arrangements are more compelling reasons to retain a visiting specialist service than to initiate one. This mirrors the research that has shown techniques used to recruit physicians to rural areas should differ from ones that are effective in retaining them[11,22,23] and indicates that when a rural area has been successful in recruiting a visiting specialist to supplement existing services, it would be wise to reinforce these altruistic motivators.

Our finding that visiting specialists are disproportionately male reflects results of a similar study of visiting specialists done in Missouri.[15] That study also found that physicians with second offices tended to be younger than the state's other physicians. With a greater proportion of the Massachusetts visiting specialists older than the age of 55, our study did not confirm that result. As this population of older visiting specialists nears retirement age, these physicians and their services will need to be replaced; this presents a challenge that is heightened by the increasing proportion of physicians who are female. Moreover, women in our study were more likely than men to have shorter drive times between their base and their specialty clinic.

Previous studies of visiting specialists have described these physicians as urban- and/or suburban-based professionals who maintain a secondary office in a rural or small town area.[15,16] If one were to consider only urban areas as sources of visiting specialists, however, this would place significant restrictions on the available pool of visiting specialists. In Massachusetts, a portion of the state's visiting specialists do not originate from urban medical centers but rather from another rural location. This raises questions about the assertion that it is intense urban competition that is driving specialists into rural areas to supplement their patient base, but continues to support the theory of supply and demand: a specialist in a rural setting has a small patient population from which to draw and therefore must expand into other rural areas that have unmet demand in order to supplement that patient base.

Table 2. Characteristics of Visiting Specialists' Clinics by Gender and Subspecialty Type

	Male n = 83 (%)	Female n = 16 (%)	Medical Specialties n = 53 (%)	Surgical Specialties n = 46 (%)	All Visiting Specialists N = 99 (%)
Number of visits to respondent's visiting specialist clinic per month					
0-1	12 (14)	1 (7)	6 (12)	7 (15)	13 (13)
2	13 (16)	2 (13)	7 (14)	8 (17)	15 (15)
>2	58 (70)	12 (80)	39 (75)	31 (67)	70 (71)
Number of patients seen on a typical day at visiting specialist clinic					
<5	4 (5)	0 (0)	3 (6)	1 (2)	4 (4)
5-15	37 (45)	10 (67)	29 (56)	18 (40)	47 (49)
>15	41 (50)	5 (33)	20 (39)	26 (58)	46 (47)
Length of time at visiting specialist clinic					
Less than 1 y	4 (5)	2 (13)	4 (8)	2 (4)	6 (6)
1-5 y	24 (29)	5 (33)	17 (33)	12 (27)	29 (30)
More than 5 y	54 (66)	8 (53)	31 (60)	31(69)	62 (64)
Round-trip time between visiting specialist clinic and home					
Less than 1 h	25 (31)	7 (47)	18 (35)	15 (33)	33 (34)
1-2 h	45 (54)	5 (33)	22 (42)	28 (61)	50 (51)
>2 h	12 (15)	3 (20)	12 (23)	3 (6)	15 (15)
Round-trip time between visiting specialist clinic and base practice*					
Less than 1 h	24 (29)	9 (60)	17 (33)	16 (36)	33 (34)
1-2 h	49 (60)	4 (27)	27 (52)	26 (58)	53 (55)
>2 h	9 (11)	2 (13)	8 (15)	3 (7)	11 (11)
Maximum time willing to travel 1 way to visiting specialist clinic					
30 min	31 (38)	9 (60)	21 (41)	19 (42)	40 (42)
60 min	41 (51)	5 (33)	26 (51)	20 (44)	46 (48)
90 min	6 (7)	0 (0)	2 (4)	4 (9)	6 (6)
120+ min	3 (4)	1 (7)	2 (4)	2 (4)	4 (4)
Length of time at current base practice*					
Less than 2 y	3 (4)	4 (27)	4 (8)	3 (7)	7 (7)
2-5 y	13 (16)	2 (13)	9 (17)	6 (14)	15 (16)
5-10 y	16 (20)	5 (33)	7 (14)	14 (32)	21 (22)
More than 10 y	49 (60)	4 (27)	32 (61)	21 (48)	53 (55)
Percentage of staffing provided by the host hospital†					
Less than 25%	36 (43)	4 (29)	14 (28)	26 (57)	40 (41)
25%-75%	3 (4)	1 (7)	3 (6)	1 (2)	4 (4)
More than 75%	44 (53)	9 (64)	34 (67)	19 (41)	53 (55)
Percentage of medical equipment provided by the host hospital†					
Less than 25%	27 (33)	4 (27)	11 (21)	20 (43)	31 (32)
25%-75%	12 (14)	4 (27)	6 (12)	10 (22)	16 (16)
More than 75%	44 (53)	7 (47)	35 (67)	16 (35)	51 (52)

* $P \leq .05$ for male versus female differences.
† $P \leq .05$ for medical versus surgical specialty differences.

In past studies, it has been difficult to identify characteristics of the host hospitals that correlate well with the number of affiliated visiting specialists.[15,16] The strong negative correlation found in our study between number of hospital beds and total number of visiting specialists hosted reflects a logical relationship between size and need for specialists, with the larger hospitals not needing to engage in a visiting arrangement.

Specialties such as ophthalmology, nephrology, and otolaryngology that may be expected to draw from a relatively limited pool of patients were among the most common practiced by visiting specialists present in our sample. Interestingly, when compared to the

distribution of specialist practices in Massachusetts, we found a disproportionately high percentage of visiting specialists reporting that they were practicing a surgical specialty. This is noteworthy as it is not uncommon for rural hospitals to lack the level of skilled staff support required to ensure high-quality postoperative care. Nevertheless, that host hospitals were more commonly providing equipment and staffing for medical than surgical specialists was unexpected.

The visiting specialists investigated in this study seem to reflect a state of stasis. Most have had their satellite clinic arrangement for at least 5 years, and few anticipate making changes to their clinics in the foreseeable future. Hospital administrators view visiting specialists as a growing trend, and many are actively recruiting more to fill additional niches in their community health care systems. This suggests that while the visiting specialists in our sample are not interested in expanding the capacity of their satellite clinics, the demand for specialist services in these communities has not yet reached saturation. Moreover, given the average age of this study's physicians, the host hospitals will need to recruit new physicians and possibly tailor their recruitment efforts to the needs of female physicians if they are to maintain (and possibly grow) their specialty clinics.

There are several limitations to our study. First, the visiting specialists included in our survey do not represent the total number of visiting specialists in Massachusetts. No master list of physicians in such practice arrangements is available, so we relied on hospitals in rural areas to provide names of physicians who were functioning in this capacity. In addition, physicians who visit rural clinics not connected to a hospital were omitted. A next step in developing a comprehensive assessment of this modality of practice would require developing such a physician list. Second, while our findings generally support similar research conducted in 2 Midwestern and thus very different states, our results cannot be generalized to other states. Finally, the issue of quality of care is an important one that this study did not attempt to address.

The goal of matching the supply of health care services with their demand has long been an elusive one for policy makers, administrators, and community leaders. Numerous studies have computed area physician/population ratios and concluded that either a provider oversupply or undersupply exists. Based on the findings of recent studies—including this one in a relatively small New England state—visiting specialist clinics represent a model that supports practice elements within a market structure[3] and should be included in any enumeration of physician availability.

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